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Midnight at the oasis: does restoration change the rigs-to-reefs debate in the North Sea?

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ABSTRACT

In the North Sea, many oil and gas fields will reach the end of their productivity and their associated structures will be decommissioned. OSPAR decision 98/3 prescribes removal of all disused offshore structures as the only acceptable decommissioning option. This policy is the legacy of the 1995 Brent Spar incident, which resulted in the current dominant discourse of 'Hands off the Oceans,' ruling out the conversion of oil and gas rigs into artificial reefs (Rigs-to-Reefs (RtR)). The shift from a conservation to a restoration paradigm could open up the RtR debate. In this paper, a discourse analysis is carried out to discern whether and how ideas about RtR and ecosystem restoration are articulated to challenge the dominant 'Hands off the Oceans' discourse and thereby bring about change in North Sea decommissioning policy. A discourse analytic framework is applied to elucidate whether an 'RtR as Restoration' discourse can be distinguished and how competing claims are presented in the various storylines. Our analysis shows an 'RtR as Restoration' discourse, consisting of four different storylines. Given the fragmented nature of this discourse, the 'RtR as Restoration' discourse will not overcome the dominant 'Hands off the Oceans' discourse.

KEYWORDS

Marine restoration; environmental discourses; decommissioning; rigs-to-reefs; North Sea; OSPAR

1. Introduction

In the coming years, numerous offshore oil and gas installations in the North Sea will reach the end of their productivity and will be decommissioned (OSJ, 2018; World Energy Council, 2017). The estimated decommissioning costs for these North Sea installations, which consist of more than 5000 wells, 500 platforms and over 10,000 km of pipeline, range between €80 and €100 billion (OSPAR Commission, 2010; World Energy Council, 2017). The United Kingdom, Norway, and the Netherlands, the three countries with the largest oil and gas industries operating in the North Sea, will bear the majority of the costs. Stakeholders in these countries are considering various options to prolong life and repurpose offshore oil and gas assets, not only because of a cost-savings argument – as some have framed it – but because of the presumed positive impacts to marine habitats associated with these installations. Conversion of decommissioned rigs and platforms into artificial reefs, known as Rigs-to-Reefs (RtR), presents a potential decommissioning option (D. Jørgensen, 2012; North Sea Futures, 2018; World Energy Council, 2017).

However, in the North Sea, the regional sea convention OSPAR[1] requires the removal of disused offshore installations (OSPAR Commission, 1998) and the guidelines on artificial reefs indicate that these may only be created from new material rather than disused offshore installations (OSPAR Commission, 2013). OSPAR's policy has thus been unfavorable towards RtR programs over the past twenty years. Decommissioning of oil and gas installations into artificial reefs in the North Sea, has been precluded by the 'story of decline and conspiracy,' which framed the case of the Brent Spar disposal in 1995 (D. Jørgensen, 2012; Stone, 2012).

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Recently, however, calls for more flexibility in the North Sea decommissioning policy have increased (Fowler, Macreadie, Jones, & Booth, 2014; Harrabin, 2018; Pearce, 2018; World Energy Council, 2017). Those advocating re-examination of OSPAR's, 1998 decision argue that blanket regulations are unlikely to yield optimal environmental, economic, and social outcomes in all situations and, therefore, decommissioning decisions should be made on a case-by-case basis (Fowler et al., 2014; Schroeder & Love, 2004).

Moreover, the evolution from a conservation and protection paradigm to one advocating ecosystem restoration presents a new development in environmental policy. Globally, biodiversity conservation commitments comprise restoration targets for all ecosystems, including in the marine environment (CBD, 2010). The European Union has pledged to meet restoration targets under its Biodiversity Strategy to 2020 (European Commission, 2011). Marine restoration is the process of assisting the recovery of a marine ecosystem that has been degraded, damaged, or destroyed (SER, 2004). Decommissioning via RtR could be seen as a form of marine ecological restoration. An important argument for RtR is the protection or enhancement of the marine ecosystem, based on the presumed ecological value of rigs as reef habitat (Fowler et al., 2014; Jagerroos & Krause, 2016; Macreadie, Fowler, & Booth, 2011). The most common goals of RtR initiatives include the creation of new habitat, restoration of damaged habitat, and protection of valuable habitat (Jagerroos & Krause, 2016). During an oil or gas installation's productive life, substantial abundances and diversity of marine species live on and around the submerged structure (Macreadie et al., 2011). RtR conversion claims to preserve much of this marine life and allow further growth. However, it is debatable whether artificial reefs boost production of biomass or merely serve as marine life aggregation devices, and whether the environmental benefits of RtR projects exceed their impacts (Jagerroos & Krause, 2016; Macreadie et al., 2011).

Obstacles regarding RtR conversion include costs (e.g. cleaning, partial removal, maintenance, monitoring), liability issues (e.g. risk of leakage from wells, safety risks for navigation), local pollution levels near installations and risks of spreading marine invasive species (Baine, 2002; Jagerroos & Krause, 2016; Macreadie et al., 2011; Schroeder & Love, 2004). Besides leaving structures intact and in place, there are several ways in which rigs can be converted into reefs (Dauterive, 2000), each involving costs and risks to different stakeholders (Fowler et al., 2014; Schroeder & Love, 2004).

This article examines the shifting discursive landscape on RtR in the North Sea in light of marine restoration initiatives set by the EU. The article poses the question:

> Is the emerging restoration discourse related to decommissioning in the form of RtR capable of changing the dominant 'Hands off the oceans' discourse as institutionalized in OSPAR 98/3 decision?

In this article, we refer to rigs and platforms as installations or structures and use the terms interchangeably throughout the text. Decommissioning is understood as an activity that involves the need to address defunct offshore platforms (Techera & Chandler, 2015). Decommissioning is technically defined as 'the safe plugging of the hole in the earth's surface and disposal of the equipment used in offshore oil production,' (Engineers, 2017). Nonetheless, decommissioning is ill-defined in international legislation (Fam, Konovessis, Ong, & Tan, 2018), but in most instances, the term is associated with abandonment, disposal, or removal.

To answer the central question we use a discourse approach (Hajer, 1995). *Discourse* is defined as, 'A specific ensemble of ideas, concepts and categorizations, that are produced, reproduced, and transformed in a particular set of practices and through which meaning is given to physical and social realities,' (Hajer, 1995, p. 44). With discourses, actors give meaning to the physical and social realities by means of storylines. *Storylines* are 'Narratives on social reality through which elements from many different domains are combined and that provide actors with a set of symbolic references that suggest a common understanding,' (Hajer, 1995, p. 62). In other words, storylines are narratives that allow actors to give meaning to physical and social phenomena and to reduce the discursive complexity to condensed problem definitions. In this sense, storylines resemble metaphors and stories (Stone, 2012). Metaphors on the surface simply draw a comparison between two things, but usually imply 'A larger narrative story and a prescription for action' and 'They are also a form of advocating particular solutions,' (Stone, 2012, p. 171). According to Stone (2012) actors use stories to define and contest policy problems.

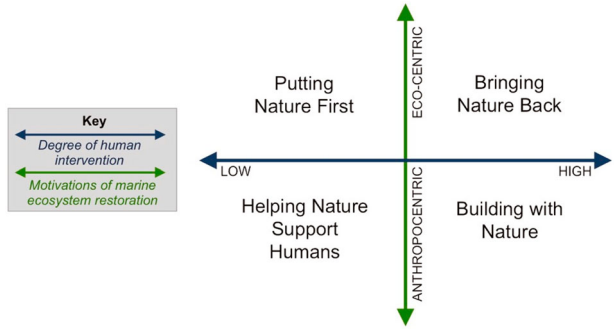

Figure 1. Discourses of Marine Ecosystem Restoration, A dominant marine ecosystem restoration discourse fills each of the four quadrants based on the degree of human intervention (*x*-axis) and the motivation underlying the intervention (*y*-axis) (Ounanian et al., 2018).

In our analysis, we will distinguish discourses and the storylines and stories, such as stories of decline and conspiracy, of which they consist. Our analysis starts by reconstructing the dominant decommissioning ('Hands off the Oceans') discourse in the North Sea, followed by the emerging alternative 'Rigs as restoration' discourse, consisting of four different storylines. These storylines have been inductively developed from document analysis and interviews. To further understand and analyze the storylines of the 'Rigs as Restoration' discourse in the North Sea, we used the conceptual framework of Ounanian et al. (2018). Ounanian et al. (2018) identified four ideal-typical discourses of marine ecosystem restoration: 'Putting Nature First,' 'Bringing Nature Back,' 'Helping Nature support Humans,' and 'Building with Nature' (see Figure 1). This framework makes it possible to identify marine ecosystem restoration discourses (and related storylines) based on the (acceptable) level of human intervention in nature and the underlying motivations for restoration, which range from ecocentric to anthropocentric motivations.

Six scoping, key informant interviews were held, with a marine ecologist (face-to-face interview), with three scientists in the MERCES project (face-to-face and via Skype), with an eNGO representative (via Skype) and an interview with an offshore oil and gas industry representative (via Skype). The interviews lasted between 45 and 90 minutes and were conducted from February to July 2018. The interviews highlighted the continuing contention over OSPAR 98/3 and directed the subsequent document analysis toward the relationship between RtR and marine restoration. Additionally, we collected data drawing from newspaper articles, opinion-editorials, and blog posts originating in social media using a system of chain-referral to other periodicals. We selected periodicals, documents, and blog posts in English, Danish, and Dutch during the period of July to September 2018. The periodicals used in the analysis appear in the article's references.

Taking as a point of departure the Brent Spar controversy and its aftermath in institutionalization of OSPAR decision 98/3, section 2 presents the policy landscape associated to RtR in the North Sea. In section 3, we present the restoration discourse of RtR and its storylines, followed by a discussion in section 4, which addresses the research question posed. Section 5 provides a short conclusion.

2. Decommissioning in the North Sea

2.1. The Brent Spar: a story of decline and conspiracy

From April to May 1995 Greenpeace occupied the Brent Spar, an offshore oil storage buoy owned by Shell. Shell wanted to dispose the facility in a deep-water trench in the North Sea, which had been approved by the UK government in February 1995 (D. Jørgensen, 2012). Greenpeace opposed the disposal at sea on the grounds it constituted 'ocean dumping' (D. Jørgensen, 2012). Greenpeace's occupation of the platform lasted 24 days and during this period, Greenpeace and the media mobilized public resistance, including boycotting and attacking Shell gas stations in Germany, to protest what Greenpeace referred to as 'the dumping of the Brent Spar.' Under public pressure in June 1995, Shell decided not to dispose of the Brent Spar at sea and to bring it to shore

for dismantling. The Brent Spar incident heralded a turning point in the North Sea decommissioning policy (D. Jørgensen, 2012; Osmundsen & Tveterås, 2003).

Greenpeace (and the media) framed the disposal of the Brent Spar at sea as a story of decline and conspiracy (Stone, 2012). A story of decline unfolds as: in the beginning, things are fine, but conditions worsen and therefore, something must be done. These stories usually end with a prediction of crisis and a proposal for steps to avoid the crisis. Stories of decline may also take the form of a warning: unless such-and-such is done, disaster will follow. The premise of a conspiracy story seeks to demonstrate that all along control has been in the hands of a few, who have used it to their benefit and concealed it from the rest of us. Conspiracy story archetypes always reveal that harm has been deliberately caused or knowingly tolerated, and thus evoke horror and moral condemnation (Stone, 2012). They culminate in the form of a call to wrest control from the few, who benefitted at the expense of the many. In the Brent Spar case, Greenpeace used metaphors and storylines to accuse Shell of irresponsible polluting of the ocean. Greenpeace called the Brent Spar 'a toxic timebomb' and a 'platform laden with toxic cocktails' and accused Shell of 'a cheapskate alternative to responsible decommissioning' and a way of 'chasing cash at the expense of the North Sea marine environment,' (Livesey, 2001). This story of decline was strengthened by a storyline of conspiracy: 'The management of Shell has deliberately wanted to dump the Brent Spar platform to save money.'

2.2. Decommissioning regulations

Decommissioning is ill-defined in international legislation, but in most instances, the term is associated to abandonment, disposal, or removal of disused offshore installations. In general, the international legal regime favors complete removal of obsolete installations to ensure safety of navigation and avoid the risk of marine pollution. Demands on the removal of disused offshore installations in international law began with article 5(5) of the 1958 Geneva Convention of the Continental Shelf (Kasoulides, 1989). UNCLOS Article 60(3) adopted these principles on the basis of safe and free navigation. UNCLOS also gives specific provisions for offshore installations (art 60(3) and 80). Removal of abandoned or disused structures is to be done in recognition of internationally accepted standards established by 'the competent international organization' (art 60(3)) (Table 1).

The International Maritime Organization (IMO) has become the 'competent international organization' responsible for oversight of Article 60 and 80, granted via the 1989 IMO Guidelines and Standards for the Removal of Offshore Installations and Structures on the Continental Shelf and in the EEZ (International Maritime Organization, 1989). The IMO outlined evaluation criteria centered on concerns for safety of navigation, including potential movement of the structure over time; deterioration of materials and the effect of the marine environment and living resources; and costs, technical feasibility, and safety risks associated with removal (Beckman, 2014). The 1989 IMO Guidelines, although usually considered as 'soft law,' became 'binding,' as they were explicitly mentioned and required in art 60(3) of UNCLOS (Fam et al., 2018).

In terms of marine pollution, UNCLOS further obliges coastal states in relation to prevention of marine pollution by dumping (art 210). Article 194 concerns pollution prevention, reduction, and control from any source in the marine environment, which has bearing on offshore oil and gas activities and installations. Article 208 and 214 connect to the content of Article 194 but are explicit about pollution arising from or in connection with seabed activities subject to coastal state jurisdiction. These two articles instruct coastal states to adopt laws and to enforce regulations concerning pollution in the marine environment under their jurisdictions, pursuant articles 60 and 80.

Overall, there is a consensus that UNCLOS and IMO do not proscribe partial or *in situ* decommissioning (Techera & Chandler, 2015). For example, 'Appropriate publicity shall be given to the depth, position and dimensions of any installations or structures not entirely removed' (art 60(3)) signals that UNCLOS allows partial removal of offshore installations (Fam et al., 2018; Techera & Chandler, 2015). Furthermore, the 1998 IMO Guidelines recognize that removing large installations located in deep waters may be infeasible; decisions regarding the allowance of offshore installations, structures, or portions of such to remain on the seabed are

Table 1. Summary of Decommissioning Regulations in International Treaties and Regional Conventions.

Treaty/ Policy, Article	Treaty/Convention Text	Observations
1958 Geneva Convention (United Nations Convention on the Continental Shelf)[a]		
Article 5(5)	'Due notice must be given of the construction of any such installations, and permanent means for giving warning of their presence must be maintained. Any installations which are abandoned or disused must be entirely removed'	Installations refer to those used for the exploration and exploitation of natural resources in the continental shelf (art 5(4))
1982 UNCLOS (United Nations Convention on the Law of the Sea)[b]		
Article 60(3)	'Due notice must be given of the construction of such artificial islands, installations or structures, and permanent means for giving warning of their presence must be maintained.Any installations or structures which are abandoned or disused shall be removed to ensure safety of navigation, taking into account any generally accepted international standards established in this regard by the competent international organization.Such removal shall also have due regard to fishing, the protection of the marine environment and the rights and duties of other States.Appropriate publicity shall be given to the depth, position and dimensions of any installations or structures not entirely removed'	Installations or structures refer to those for the purposes provided for in article 56 and other economic purposes (art 60(1))Purposes refer to exploration and exploitation, conservation and maintenance of living and non-living natural resources, production of energy from the water, current and winds (art 56(1)(a))In the exclusive economic zone, coastal State has the exclusive right to construct these installations and has exclusive jurisdiction (art 60(1))
Article 80	'Artificial islands, installations and structures on the continental shelf. Article 60 applies mutatis mutandis to artificial islands, installations and structures on the continental shelf'	Mirrors article 60(3), but applies to all artificial islands, installations and structures on the continental shelf
Article 194	'States shall take […] measures […] that are necessary to prevent, reduce and control pollution of the marine environment from any source' (art 1)	Measures shall include those designed to minimize to the fullest possible extent pollution from installations used in the exploration or exploitation of natural resources (art 194 (3)(c))
Article 208	'Coastal States shall adopt laws and regulations to prevent, reduce and control pollution of the marine environment arising from or in connection with seabed activities subject to their jurisdiction and from artificial islands, installations and structures under their jurisdiction pursuant to articles 60 and 80'	Standards and regulations must not be less effective than international ones (art 208(3))
Article 210	'States shall adopt laws to prevent, reduce and control pollution of the marine environment by dumping'	Coastal States are permitted to legislate what may be dumped at sea (art 210(4))'Dumping' is defined as 'any deliberate disposal of […] platforms or other man-made structures at sea' (art 1(1)(5)(a))It is also established that 'dumping does not include placement of matter for a purpose other than the mere disposal thereof, provided that such placement is not contrary to the aims of this Convention' (art 1(1)(5)(a))
Article 214	'States shall enforce their laws and regulations adopted in accordance with article 208'	Prevent, reduce, and control pollution of the marine environment arising from or in connection with seabed activities subject to installations and structures under the States' jurisdiction, pursuant to articles 60 and 80
1989 International Maritime Organization Guidelines and Standards for the Removal of Offshore Installations & Structures on the Continental Shelf & in the EEZ[c]		
Section 1.1	'Abandoned or disused offshore installations or structures on any continental shelf or in any exclusive economic zone are required to be removed, except where non-removal or partial removal is consistent with the following guidelines and standards'	Standards set from a safety navigation of the seas point of viewDecision to allow offshore installations to remain on the seabed is made by case-by-case decision by the coastal State with jurisdiction over the installation on the basis of outlined criteria (section 2.1)
Section 3.1.2	'Where living resources can be enhanced by the placement on the sea-bed of material from removed installations or structures (e.g. to create an artificial reef), such material should be located well away from customary traffic lanes, taking into account these guidelines and standards and other relevant standards for the maintenance of maritime safety'	
1972 London Convention (on the Prevention of Marine Pollution by Dumping of Wastes and other Matter)[d]		
Article IV	Dumping of […] material listed in Annex I is prohibited (article IV (1)(a))Dumping of […] material listed in Annex II requires a	Dumping defined as any deliberate disposal at sea of […] platforms or other man-made structures at sea (art III

(*Continued*)

Table 1. Continued.

Treaty/ Policy, Article	Treaty/Convention Text	Observations
	prior special permit (article IV (1)(b))[platforms are not mentioned as being part of Annex I or II]	(1)(a)(ii))Dumping does not include placement of matter for a purpose other than the mere disposal thereof, provided that such placement is not contrary to the aims of this Convention (art III(1)(b)(ii))
1996 London Protocol (to the Convention on the Prevention of Marine Pollution by Dumping of Wastes and other Matter)[e]		
Article 4 (1)(2)	The dumping of wastes or other matter listed in Annex I shall require a permit[Platforms and other man-made structures at sea are part of Annex 1]	Further clarified that dumping does not include abandonment in the sea of matter […] placed for a purpose other than the mere disposal thereof (art (1)(4)(2)(3))
OSPAR Decision 98/3 on the Disposal of Disused Offshore Installations[f]		
Article 2	'[…] the leaving wholly or partly in place, of disused offshore installations within the maritime area is prohibited	'Disused offshore installation' means an offshore installation, which is neither a. serving the purpose of offshore activities for which it was originally placed within the maritime area, nor b. serving another legitimate purpose in the maritime area authorized or regulated by the competent authority of the relevant Contracting Party; but does not include: c. any part of an offshore installation which is located below the surface of the sea-bed, or d. any concrete anchor-base associated with a floating installation which does not, and is not likely to, result in interference with other legitimate uses of the sea' (art 1) In special instances competent authority of the relevant Contracting Party may give permission to leave whole/parts of installations
OSPAR 2012 Guidelines on artificial reefs in relation to living marine resources[g]		
Article (4)(1)(11)	Artificial reefs should be built from inert materials […] those which do not cause pollution through leaching, physical or chemical weathering and/or biological activity.	Inert materials were referred to a 'virgin' materials in previous guidelines and preclude materials previously used for oil and gas exploration and excavation
Article (4)(1)(13)	No materials should be used for the construction of artificial reefs which constitute wastes or other matter whose disposal at sea is otherwise prohibited.	This effectively rules out the rigs-to-reefs option in the North Sea

[a]United Nations Convention on the Continental Shelf. Geneva, Switzerland, 29 April 1958. https://treaties.un.org/doc/Publication/UNTS/Volume%20499/volume-499-I-7302-English.pdf

[b]United Nations Convention on the Law of the Sea, Montego Bay, Jamaica, 10 December 1982 https://www.un.org/depts/los/convention_agreements/texts/unclos/unclos_e.pdf

[c]13989 Guidelines And Standards For The Removal Of Offshore Installations And Structures On The Continental Shelf And In The Exclusive Economic Zone (Imo Resolution A.672 (16))
https://cil.nus.edu.sg/wp-content/uploads/formidable/18/1989-Guidelines-and-Standards-for-the-Removal-of-Offshore-Installations-and-Structures-on-the-Continental-Shelf-and-in-the-Exclusive-Economic-Zone.pdf

[d]Convention On The Prevention Of Marine Pollution By Dumping Of Wastes And Other Matter (This text contains all the amendments which entered into force). http://www.imo.org/en/OurWork/Environment/LCLP/Documents/LC1972.pdf

[e]1996 Protocol To The Convention On The Prevention Of Marine Pollution By Dumping Of Wastes And Other Matter, 1972 (as amended in 2006) https://www.epa.gov/sites/production/files/2015-10/documents/lpamended2006.pdf

[f]1998 Ospar Decision 98/3 On The Disposal Of Disused Offshore Installations Adopted in Sintra, Portugal on 22–23 July 1998 https://cil.nus.edu.sg/wp-content/uploads/formidable/18/1998-OSPAR-Decision-98-3.pdf

[g]OSPAR Guidelines on Artificial Reefs in relation to Living Marine Resources1 (Reference number: 2012–2013. The agreement replaces Agreement 1999–1913) https://www.miteco.gob.es/es/costas/temas/proteccion-medio-marino/OSPAR_Artificial%20Reefs%20Guidelines_tcm30-157010.pdf

done through case-by-case evaluation by the coastal state with jurisdiction over the structure (Beckman, 2014; Fam et al., 2018).

The Convention on the Prevention of Marine Pollution by Dumping of Wastes and other Matter, known for its 1972 London Convention and 1996 London Protocol, is also of consequence to the RtR debate (International Maritime Organization, 1972, 1996). The 1972 London Convention aims at controlling marine pollution through regulating the deliberate dumping of waste at sea, including intentional disposal of platforms or other man-made structures at sea. The 1972 London Convention clarifies that artificial reefs and RtR are not considered dumping as long as the placement on the seabed is not for disposal or contrary to the aims

of the Convention (Beckman, 2014). The London Protocol retains the exception for artificial reefs as 'placement of matter for a purpose other than the disposal' is not considered dumping (International Maritime Organization, 1996). According to Fam et al. (2018), the Convention allows some room for domestic legislation to create RtR policies as the Convention considers that the coastal state has the authority to grant permits of dumping of these 'other wastes or matter.' If *in situ* decommissioning is done with a purpose (e.g. creation of an artificial reef), then the Convention or the Protocol would not be breached, as long as this coastal state's legal framework permits decommissioning (Techera & Chandler, 2015).

In the North Sea, OSPAR has set policies explicitly addressing not only the removal of disused installations at sea, but also their potential use as artificial reefs. OSPAR Decision 98/3 governs the disposal of disused offshore installations and requires the removal of the majority of all disused structures with only the possibility of footings remaining[2] (Fam et al., 2018). In addition, OSPAR's Guidelines on Artificial Reefs in Relation to Living Marine Resources (OSPAR Commission, 2013) state that artificial reefs may only be created from new materials rather than from disused offshore installations infrastructure. OSPAR states, 'No materials should be used for the construction of artificial reefs which constitute wastes or other matter whose disposal at sea is otherwise prohibited,' (OSPAR Commission, 2013). OSPAR's guidelines are not legally binding; yet, they set acceptable international practice in the North Sea region. The 2013 OSPAR Guidelines rule out the potential of RtR in the North Sea (Techera & Chandler, 2015), and as D. Jørgensen (2012, p. 60) writes, 'as long as the guidelines contain the provision that restricts reefs to "virgin materials,"[3] rigs-to-reefs may be difficult to implement in the North Sea.'

3. Restoration discourses related to RtR

Our analysis of the arguments employed by actors and stakeholders in the North Sea in connection to the decommissioning in the form of RtR points to two discourses: a dominant 'Hands off the Ocean' discourse, and an emerging alternative 'Rigs as Restoration' discourse.

3.1. Hands off the oceans: the dominant decommissioning discourse in the North Sea

International regulations (e.g. 1982 UNCLOS, 1972 London Convention and 1996 London Protocol) give some room to maneuver in terms of decommissioning in the form of RtR. UNCLOS III Articles 194, 208, and 214 have provisions for artificial reefs, including RtR installations, for nature conservation or scientific purposes. However, the Brent Spar incident, in which disposal was presented as a 'story of decline and conspiracy,' combined with slippery slope metaphors such as 'toxic timebomb,' not only set the scene against decommissioning in the form of RtR, but also persuaded the line of reasoning in regional legislation, which states that decommissioning should not be dumping in disguise.

After the Brent Spar incident, OSPAR required the removal of the disused installations from the North Sea. D. Jørgensen (2012) gives a thorough overview of how discussions after the Brent Spar incident resulted in the OSPAR 98/3 decision, and influenced the 2013 OSPAR guidelines on artificial reefs. The article offers an in-depth insight into the positions of countries, as well as understanding of the development of the wording and framing of artificial reefs in relation to living marine resources (D. Jørgensen, 2012).

The dominant decommissioning discourse at the North Sea was then 'Hands off the Oceans,' summarized by the storyline that abandoned or disused installations, structures, and/or platforms should not be disposed/dumped into sea but rather removed and dismantled onshore. This discourse is institutionalized in OSPAR 98/3 decision, and is supported by the 2013 OSPAR Guidelines, which prevents all inert materials as acceptable reef material. The 'Hands of the Ocean' discourse rejects RtR as an appropriate option of restoration, and centers on environmental protection as it assumes that by protecting the environment from pollution and degradation, there is no need for restoration.

Nevertheless, changes have taken place in the North Sea since OSPAR established its regulatory framework. The presence of a relatively large amount of offshore oil and gas installations soon to be decommissioned, as well as mounting evidence related to the value of these installations in terms of marine restoration have brought

new light to the options of converting decommissioned installations into artificial reefs. Here an alternative discourse in the form of 'Rigs as Restoration' emerges.

3.2. The emerging rigs as restoration discourse

The 'Rigs as Restoration' discourse resembles the 'Building with Nature' discourse in that human intervention and nature are no longer separate but regarded as reinforcing, intertwined entities (Ounanian et al., 2018). This can be exemplified by the RtR program in the Gulf of Mexico (Kaiser & Pulsipher, 2005), where RtR conversion was lauded by environmental and socioeconomic interests as a win-win situation, given that most converted structures support ecologically, recreationally and commercially important marine species (D. Jørgensen, 2009; see Salcido, 2005 for a critical appraisal). In California, after more than a decade-long opposition to RtR policies, a bill was passed allowing RtR conversion when the industry can demonstrate a net benefit to the environment (Macreadie, Fowler, & Booth, 2012). The California case was not simply about pro-environment versus pro-industry divisions. Atypical coalitions among segments of the fishing industry aligned with environmentalists, whereas other fishing groups were on the opposite side of the issue (D. Jørgensen, 2013).

The main storyline of 'Rigs as Restoration' sets decommissioning in the form of RtR conversion as a form of marine ecological restoration because RtR are presumed to assist the recovery of a marine ecosystem that has been degraded, damaged, or destroyed. However, in contrast to the 'Hands off the Oceans' discourse, the 'Rigs as Restoration' discourse is fragmented and consists of four different conflicting, but co-existing storylines (see Figure 2).

3.2.1 The cost-savings storyline

Maintaining the anthropocentric orientation, a number of proponents for RtR in the North Sea, identify cost-savings as a primary motivation. This line of argument is evidenced in opinion-editorials, blogs, and in popular press (Baxter, 2017; Goth, 2017; Harrabin, 2018; A. M. Jørgensen, 2018; Sonne, 2018). The cost-savings argument is not a simple concern for energy prices or direct benefits to the offshore oil and gas industry. Rather, some argue that the financial resources necessary for removal could be better spent on conservation and/or restoration activities of the marine environment (Goth, 2017; A. M. Jørgensen, 2018). One such proponent referred to the costs of removal as 'dead money,' and advocated to use the funds on other conservation efforts (Goth, 2017). Additionally, the cost to the public is invoked in media articles, which highlight that in many cases the state will bear 60% of the cost due to tax deductions or reimbursements (Fowler et al., 2014; Goth, 2017; Harrabin, 2018; A. M. Jørgensen, 2018; Sonne, 2018; World Energy Council, 2017).

In contrast, some eNGOs, especially the large, multinational groups with large donation bases, still see the prohibition of RtR in the North Sea as a means of keeping the oil and gas industry operating costs high.

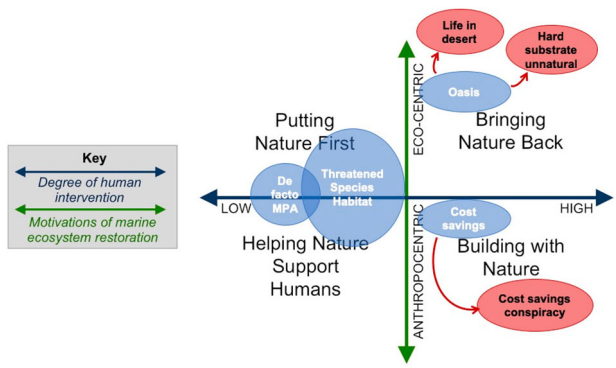

Figure 2. Four Rigs-to-reefs storylines mapped onto the marine ecosystem restoration conceptual model. The opposing storylines are represented in red to illustrate how actors work to invalidate certain storylines.

Moreover, these organizations do not want to appear soft on that industry for the sake of donors, (eNGO, personal communication). To illustrate, BBC News quotes Greenpeace's Doug Parr, 'We should be wary of proposals that look like a convenient way of oil companies avoiding their responsibility to clean up after themselves,' (Harrabin, 2018). RtR opponents also position RtR as 'greenwashing:'

> The immense potential cost savings to the petroleum industry to be gained by not removing old rigs that have made immense profits for companies over the decades has led oil interests to undertake a slick public relations campaign as they try to break their promises. Financially motivated to avoid about 50% of their obligated decommissioning costs, the drillers cleverly anointed their effort to circumvent federal decommissioning requirements with the name Rigs-to-Reefs, (Charter, n.d.).

Here, we see almost the reciprocal of the taxpayer savings argument in the 50% cost, where Charter (n.d.) frames the cost savings as beneficial to the oil companies, an opposing storyline. He claims that there is no evidence that RtR are beneficial 'for anyone but the accounting department of an oil company,' (Charter, n.d.). Others argue that oil companies should not benefit from the savings, but rather the savings should be invested in renewables or marine conservation (Goth, 2017; A. M. Jørgensen, 2018; Pearce, 2018). Thus, the cost-savings arguments comes for and against RtR. Proponents of RtR fold the cost-savings argument into a storyline of restoration and recovery, whereas opponents use cost savings as part of a storyline of conspiracy.

Within the cost-savings argument, there is a tangential concern for the cost borne by the offshore renewable energy sector, as some turbines will soon reach the end of their lifecycles (Baldwin, 2018; Harrabin, 2018; Sonne, 2018). Some question whether the offshore wind sector will be subject to OSPAR 98/3 (eNGO, personal communication; van Beuge, 2016). Nonetheless, many see that the renewable sector will be subject to the same inert materials rules, which will be an extra cost on a somewhat nascent (clean) energy sector. Finally, this may emerge as a schism within the eNGO community between those more dogmatic toward OSPAR 98/3, the opposition to fossil fuels, and with a nature protection paradigm; to more pragmatic groups that do not want to impose barriers on the transition to renewable energy (eNGO, personal communication).

3.2.2 The rigs as habitats for (threatened) species storyline

Some proponents of RtR in the North Sea point to the structures' provision of hard substrate, which has helped the production of benthic communities and endangered cold-water corals, such as *Lophelia pertusa* (Pearce, 2018). Specific mentions of threatened species appear in articles (Harrabin, 2018). The articles highlight the research of Claisse et al., who demonstrate the benefits of RtR for blue mussels and cold-water corals (Coghlan, 2014; D. Jørgensen, 2018).

Additionally, some articles anthropomorphize aquatic species (Baldwin, 2018; Coghlan, 2014). An online newsletter article features the title, 'Fish Love Skyscraper-Style Living under Oil Platforms,' and explains the advantageousness of the rigs' multi-dimensions from Claisse et al. (2014) (Coghlan, 2014). In another instance, authors write, 'Fish have made oil rigs—in place for decades—home,' (Baldwin, 2018). Such a statement not only gives fish anthropomorphic agency in making a home, but also plays with the temporal component of nature by mentioning that the rigs have been in place for decades. The temporal aspect links nicely to the man-made versus natural debate in ecosystem restoration as 'Nature is what man has not made, though if he made it long enough ago—a hedgerow or a desert—it will usually be included as natural,' (Williams, 2008, p. 211). Altogether the focus on benefits to specific species, their preferences, and subsequent anthropomorphizing result in a storyline that nature has adopted and 'likes' these structures and removing them would harm species already in decline.

3.2.3 The oasis in the desert storyline

Considering Williams' reference to desert above, there is an interesting parallel to draw between the advocates of RtR and the metaphor of the North Sea as a desert. As aforementioned, there is evidence of proponents framing the rigs as fisheries enhancement tools (Baldwin, 2018; Coghlan, 2014; Harrabin, 2018; A. M. Jørgensen, 2018). Moreover, there are a number of instances where the North Sea is depicted as a desert, devoid of life, where the rigs offer a beacon of life, or *oasis*. Writing about the rigs' provision of hard substrate, A.

M. Jørgensen (2018, translated) refers to the research findings of Jon Christian Svendsen as 'these oases in the sea around Denmark.' The oasis metaphor was also prominent in the Gulf of Mexico RtR debate (D. Jørgensen, 2009). Advocates argue that the rigs mimic the stone reefs that were once more prevalent in the North Sea and provide the hard substrate needed for blue mussels and corals to colonize (A. M. Jørgensen, 2018; Pearce, 2018; Sonne, 2018). Proponents refer to the research on their mimicry of natural structures (Henry, Harries, Kingston, & Roberts, 2017), enhanced productivity (Claisse et al., 2014; Fowler et al., 2018), marine mammal attraction (Delefosse, Rahbek, Roesen, & Clausen, 2018), and growing scientific consensus on revising artificial reef guidelines in OSPAR (Fowler et al., 2018).

What is also interesting about the oasis in the desert storyline is the invocation of barrenness and sand as devoid of life. Some restoration ecologists have warned of the 'deceptive barrenness' of the desert and likewise, the sea (ecological restoration expert, personal communication). Indeed, when talking about rigs providing oases to fish species in the sandy-bottom 'desert' of the ocean floor, there is an assertion that life does not exist in the sand. Nonetheless, one news article reports on the importance of soft bottom habitat for fish (Sonne, 2018). In turn, this takes us to one of the central points in the debate over RtR as a means of restoration in the North Sea: is hard substrate indeed 'missing' or is it 'unnatural'?

An eNGO informant referred to the work of marine ecologists Lindeboom and Roberts, who delve into the discussion of what is the 'natural' state of the North Sea (personal communication). Indeed, some eNGOs reject the idea that there is a need for hard substrate. Quoted by BBC, Greenpeace representative Parr makes an interesting statement, 'The North Sea is not a natural environment for hard structures and leaving rigs there is a distortion of the ecosystem—a raft of plastic bottles accumulates marine life, but no-one is arguing we should create more,' (Harrabin, 2018). The first element is a rejection of hard substrate as natural, then stating that it would alter natural ecosystem conditions. Secondly, the analogy to plastic in the ocean – perceived by many as pollution – casts the rigs as pollution to be removed from the sea. This metaphor presumes that species adaptations do not equate restoration. Interestingly, a researcher in the MERCES[4] consortium used the plastics metaphor during a discussion of RtR and restoration at the project's 2018 annual meeting, highlighting its dispersal.

The contention over what is 'natural' habitat in the North Sea is at the heart of the RtR debate and connects further to the conceptions of marine ecosystem restoration. Within the eNGO community there exists a division. One set holds a conservation or protection stance and thus wants to keep human activities out of the environment; another set views the sea as a space that has had and will have activity with layers of human impact, and seeks ways to restore the environment in connection with those activities. Furthermore, the perception of the sea as the 'last wilderness' or final untouched environment feeds into these divisions. Relatedly, there is a new research paradigm working to remove the imprint of colonialism on conceptualizations of the oceans as empty or untouched (Hofmeyr, 2018). Thus, proposing the oceans as devoid of human activity erases the history of interaction between people and the environment.

A storyline of nature needing cultivation is implicit in the oasis argument. Nonetheless, there remains the question as to how much and what kind of human intervention is necessary on behalf of the environment. Opponent of RtR, Richard Charter (n.d.) writes, 'Ultimately allowing the marine environment to restore itself was the stated rationale for the decommissioning contracts that the drillers originally accepted.' Arguing that RtR represents oil and gas companies going back on their original promise, Charter promotes a storyline of conspiracy. Furthermore, RtR opponents seize upon the idea that nature knows best, advocating the restoration discourse of low human intervention seen in 'Putting Nature First' (Ounanian et al., 2018). In their minds, however, RtR does not put Nature first.

3.2.4 RtR as de facto MPA storyline

Interestingly, a number of proponents frame RtRs as de facto MPAs due to their physical impenetrability for trawl gear and the legally stated safety zones (Harrabin, 2018; A. M. Jørgensen, 2018; Sonne, 2018). This is especially promising for decommissioned windfarms, which have a larger footprint in the seabed than single, isolated oil and gas platforms (eNGO, personal communication). Once again, the desert is invoked; one periodical quotes researcher Jonas Teilmann, 'The physical structures also ensure that the areas are not trawled. The

heavy trawl makes the seabed into a uniform desert, where biodiversity has narrow conditions,' (Sonne, 2018, author translation). The case of California highlighted an 'unholy alliance' of trawlers and environmentalists opposing RtR, whereas sport fishers aligned with RtR proponents because of differences in gear (D. Jørgensen, 2013). Additionally, concerns over contaminants from drill cuttings also figure into this argument, as some state concern that these buried contaminants will be churned up either during removal or spread further by trawling (Pearce, 2018):

> 'In practice, fully removing a platform, without removing the drill cutting pile, would spread pollution over a much larger area,' says [A.M.] Jørgensen. It might happen during decommissioning or subsequently, 'when the area is opened up for trawlers,' she says.

Therefore, we see that these arguments fall under a lower human intervention frame (where the intervention is understood as the act of decommissioning), but perhaps for more anthropocentric reasons. By advocating spatial tools, RtR may fall somewhere between 'Putting Nature First' and 'Helping Nature Support Humans' (See Figure 1). Spanning the continuum of anthropocentric and eco-centric, these arguments against removal coalesce in a storyline of pragmatism originating in low levels of intervention.

However, the inclusion of RtR as an example of marine ecosystem restoration may be controversial in the eyes of some environmental advocates and restoration practitioners. Those individuals and groups object to the inclusion on the grounds that placing man-made materials in the environment does not constitute restoration. In some instances, restoration advocates and practitioners recognize that RtR lies on the continuum of restorative activities (ecological restoration expert, personal communication). Nonetheless, as established (Ounanian et al., 2018), when discussing the future of governance in this domain, a broad operationalization of ecosystem restoration is appropriate.

4. Discussion

Proponents and opponents of the conversion of decommissioned installations into artificial reefs in the North Sea interpret the 'rigs-to-reefs' meta-frame in different ways. Our analysis of the RtR debate in the North Sea showed a dominant 'Hands off the Oceans' discourse and an emerging, fragmented 'Rigs as Restoration' discourse consisting of three different, sometimes internally conflicting storylines. We now discuss whether and how an emerging alternative restoration discourse related to decommissioning in the form of RtR is capable of altering the OSPAR 98/3 decision.

Both proponents and opponents of RtR use the cost-savings storyline. Proponents argue that the financial resources necessary for removal of installations can be better spent on restoration activities. Additional arguments point out that RtR relieves society from high removal costs, given that a proportion of the decommissioning costs are tax deductible and ultimately borne by the taxpayer. This reflects the wider 'Building with Nature' discourse, preferring rig conversion to artificial reefs, over the removal of artificial rigs and installations where the motivations are primarily anthropocentric (i.e. on financial grounds). Those opposing RtR recast cost-savings arguments as favoring the oil and gas sector rather than the public and the environment. This storyline emphasizes the polluter pays principle and a 'conspiracy among oil companies to use rigs-to-reefs as a cover for evading the deep-water disposal rules' and associated removal costs (D. Jørgensen, 2012, p. 60). Thus, this conspiracy storyline works to disqualify RtR as Restoration.

The other storylines show contrasting arguments from the 'Helping Nature Support Humans,' 'Putting Nature First,' and 'Bringing Nature Back' quadrants, which generally divide as a RtR-as-natural versus RtR-as-unnatural debate. On the low intervention side of the continuum, we find arguments that celebrate 'Rigs as habitats for (threatened) species' and 'Rigs as de facto MPAs.' As established by Ounanian et al. (2018), spatial management represents a low degree of human intervention, which captures these two storylines. The 'Rigs as habitats for (threatened) species' storyline presents different arguments on the low intervention level of the continuum within the 'RtR as natural' debate. Rigs and installations are expected to bring endangered or threatened species back, and thus should be allowed to occur/continue. In some instances, these storylines may be formulated as more anthropocentric by emphasizing commercially exploited species, and in other

instances ecosystem health and productivity may be central as eco-centric motivation. Arguments, which posit 'RtR as unnatural habitat,' are also low on the intervention level side of the continuum, but the high degree of anthropocentrism invalidates RtR's standing as restoration.

In contrast, the 'Oasis in the desert' storyline emphasizes that the North Sea needs human intervention through RtR to create these hard substrate spaces, with fisheries enhancement as potential benefits ('Bringing Nature Back'). This storyline is on the eco-centric side of the spectrum because the needs of the species to thrive are in focus. Two opposing storylines work to invalidate the 'Oasis in the desert' storyline. First, some eNGOs reject the need for hard substrate with some arguing that it is unnatural in the North Sea. A second opposing storyline works against the metaphor of desert devoid of life and asserts that indeed there is life in the sand. Once again, theses opposing storylines work to throw RtR outside of the marine restoration discourse.

The ecological restoration discourse with its different storylines takes RtR as a serious decommissioning option impinging on OSPAR's decision 98/3. The question remains, are these emerging marine restoration storylines strong enough to challenge the 'Hands off the Oceans' discourse and to develop decommissioning through RtR as a legitimate strategy of conservation and restoration? Moreover, can they reframe the debate to put the issue back on OSPAR's agenda? Until now, proponents of decommissioning as RtR have been unsuccessful in putting this on OSPAR's agenda. Given the fragmented nature of the 'Restoration' discourse, it is not expected that the storylines highlighting the restorative function of RtR could gain traction in the near future. However, some developments could tilt the debate when different policy streams merge, opening the opportunity for policy change within OSPAR. Such streams include plans for an energy transition in the North Sea that involves deployment of large windfarms – which require policy development for turbine decommissioning (van Beuge, 2016) – as well as the EU's international commitments to meet (marine) biodiversity targets (European Commission, 2011). The EU Biodiversity Strategy to 2020 recognizes the compelling problem of biodiversity loss, which includes provisions for the establishment of 'blue infrastructure' at sea and a 'mitigation hierarchy' that prescribes actions based on an impact assessment of infrastructure project development (European Commission, 2011). Such provisions – and framings of RtR as tools for marine conservation, restoration, and mitigation – may instigate a discussion to change the OSPAR 98/3 decision.

5. Conclusions

Decommissioning is and will remain an important issue in the near and far future in the North Sea. Over the coming decades, offshore oil and gas installations will reach the end of their productivity, while the recent rapid developments of wind farms will face decommissioning in fifty years' time. This article presented the history of the decommissioning debate in the North Sea, especially the conversion of rigs and platforms into artificial reefs, the 'Rigs-to-Reefs' (RtR) option, and how the RtR debate was affected by the Brent Spar incident in 1995. The opposition to Shell's intention to dispose of the Brent Spar at sea strengthened the international 'Hands off the Oceans' discourse and resulted in OSPAR's 98/3 decisions. Since then environmental management at sea has evolved from a conservation and protection paradigm to one advocating restoration. However, this shift has not changed OSPAR's agenda. This article posed the question: is the emerging restoration discourse related to decommissioning in the form of RtR capable of changing the dominant 'Hands off the oceans' discourse as institutionalized in OSPAR 98/3 decision? The analysis showed an emerging 'RtR as Restoration' discourse, consisting of four different storylines. However, given the present, fragmented nature of this discourse, and the counterarguments voiced, we do not expect that the 'RtR as Restoration' discourse will challenge the dominant 'Hands off the Oceans' discourse, nor will it open the RtR debate on OSPAR's decision in the near future. However, the development of windfarms and the EU Biodiversity Strategy could result in a reframing of the restoration discourse and in the end put decommissioning as RtR conversion on OSPAR's agenda again.

Notes

1. OSPAR started in 1972 with the Oslo Convention against dumping and was broadened to cover land-based sources of marine pollution and the offshore industry by the Paris Convention of 1974. These two conventions were unified, updated, and

extended by the 1992 OSPAR Convention to protect the marine environment of the North-East Atlantic. The new annex on biodiversity and ecosystems was adopted in 1998 to cover non-polluting human activities that can adversely affect the sea (https://www.ospar.org/about, visited 8 February 2019).
2. Certain structures may be exempted from removal, such as steel jackets weighing more than 10,000 tonnes, gravity-based concrete installations, floating concrete installations, and concrete anchor-based installations.
3. Since D. Jørgensen's 2012 article, OSPAR adopted the term 'inert' as opposed to 'virgin.' The guideline defines inert material as 'Those which do not cause pollution through leaching, physical or chemical weathering and/or biological activity' (OSPAR Commission, 2013, paragraph 11).
4. H2020 project MERCES (Marine Ecosystem Restoration in Changing European Seas).

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